

IN THE CLAIMS:

Listing of the claims:

1. (Currently amended) An imaging spectrometer comprising;
an ~~imagering means~~ for dividing a received image into two or more spatially separated spectral images, and

~~means~~ detector apparatus for detecting each spectral image,
~~characterised in that~~ wherein the ~~imagering means~~ comprises at least one polarising beam splitter.
2. (Currently amended) A spectrometer according to claim 1 wherein the ~~imagering means~~ comprises an image replicator ~~ion means~~ to produce two or more spatially separated images, and one or more filter elements which act to alter the spectral characteristics of one or more of the spatially separated images.
3. (Original) A spectrometer according to claim 2 wherein the filter elements are dichroic filter elements.
4. (Currently amended) A spectrometer according to claim 2 ~~or 3~~ wherein the filter elements are located in the vicinity of the said ~~means~~ detector apparatus ~~for detecting each spectral image~~ or a conjugate plane thereof.
5. (Currently amended) A spectrometer according to ~~any of~~ claims 2 ~~to 4~~ having an image replicator ~~ion means~~ that comprises two or more polarising beam splitters and additionally comprising optical retardation elements located between the polarising beam splitters.
6. (Currently amended) A spectrometer according to ~~any of~~ claims 2 ~~to 5~~ and additionally comprising an input optical retardation element to define the input polarisation state of the image received by the ~~imagering means~~.

7. (Original) A spectrometer according to claim 6 wherein the optical retardation imparted by the input optical retardation element is variable.

8. (Currently amended) A spectrometer according to ~~any of~~ claims 5-7 wherein at least one of the optical retardation elements have substantially wavelength independent retardation properties.

9. (Currently amended) A spectrometer according to claim 1 wherein the imaging means comprises one or more spectral replicators~~ion means~~ arranged in optical series, each spectral replicators~~ion means~~ comprising an optical retardation element and a polarising beam splitter.

10. (Original) A spectrometer according to claim 9 wherein one or more of the optical retardation elements provides a wavelength dependent polarisation change.

11. (Currently amended) A spectrometer according to claim 9 ~~or 10~~ wherein the thickness of the one or more optical retardation elements is chosen to define the spectral properties of each spectral image.

12. (Currently amended) A spectrometer according to ~~any preceding~~ claim 1 wherein four or more spatially separated spectral images are produced.

13. (Currently amended) A spectrometer according to ~~any preceding~~ claim 1 wherein each spectral image is composed of radiation within a different waveband.

14. (Currently amended) A spectrometer according to ~~any preceding~~ claim 1 wherein the detector apparatus ~~means for detecting each replicated image~~ comprises a detector array, each replicated image being directed to a separate portion of the detector array.

15. (Currently amended) A spectrometer according to ~~any of~~ claims 1-13 wherein the ~~means detector apparatus for detecting each replicated images~~ comprises two or more detector arrays.

16. (Original) A spectrometer according to claim 15 wherein a separate detector array is provided to detect each replicated image.

17. (Currently amended) A spectrometer according to ~~any preceding~~ claim 1 wherein the polarising beam splitter is a Wollaston prism.

18. (Currently amended) A spectrometer according to ~~any preceding~~ claim 1 wherein the optical components of the imager ~~replication means~~ are formed as a single compound optical element.

19. (Currently amended) A spectrometer according to ~~any preceding~~ claim 1 and additionally comprising a field stop, the field stop limiting the field of view of the image received by the imager ~~replication means~~.

20. (New) An imaging spectrometer comprising;
imaging means for dividing a received image into two or more spatially separated spectral images, and
means for detecting each spectral image,
characterised in that the imaging means comprises at least one polarising beam splitter.